APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/033,584	12/27/2001	Kenji Yamagami	36992.00088 (HAL 197)	9186

			EXAMINER
7590	04/14/2004		LE, DEBBIE M

Daryl C. Josephson
Squire, Sanders & Dempsey L.L.P.
600 Hansen Way
Palo Alto, CA 94304

ART UNIT	PAPER NUMBER
2177	3

DATE MAILED: 04/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 December 2001*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

   4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   a)☐ All b)☐ Some * c)☐ None of:

   1.☐ Certified copies of the priority documents have been received.

   2.☐ Certified copies of the priority documents have been received in Application No. _____.

   3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
   application from the International Bureau (PCT Rule 17.2(a)).

   * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
   Paper No(s)/Mail Date <u>2</u>.

4)☐ Interview Summary (PTO-413)
   Paper No(s)/Mail Date. _____ .
5)☐ Notice of Informal Patent Application (PTO-152)
6)☐ Other: _____ .

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 14-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 14-15 are objected because a single claim which claims both an apparatus and the method steps of using the apparatus is indefinite under 35 U.S.C 112, second paragraph. This type of claim is indefinite because it fails to positively recite the boundaries sought for protection. The metes and bounds of the claim cannot be determined because it is unclear as to which category of subject matter sought or protection.

Claim 20 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. **In page 6, lines 30-31 and page 7, lines 1-2 of the specification,** the omitted structural cooperative relationships are: the non-sync state needs between the first storage volume (vol. 1) and a fourth storage volume (vol. 4). As the result, the examiner interprets the claim to read that, for example, a first storage volume is an

Oracle database and a fourth storage volume is a DB2 database, the two different

databases have the same backup server (secondary storage system, an instant

application invention). However, the backup server generates and maintains two copies

of data for the two above database and nevertheless; these content of Oracle and DB2

databases data does not need to be sync or the volume 1 does not need to be sync to

the volume 4.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-13, 16-20 are rejected under 35 U.S.C. 102(b) as being anticipated by

Tamer et al (USP 6,035,412).

As per claims 1, 16, Tamer discloses a database backup systems comprising:

performing a backup procedure (database backup system and procedures)

comprising the steps of: **providing a first logical volume to the first storage**

subsystem, as writing data to a first set of storage volumes (col. 2, lines 15-16) **and a**

second logical volume, as a second set of storage volumes (col. 2, line 17) **and a**

third logical volume in the second storage subsystem, as backing up data stored in

the second set of volumes to the tertiary storage device (col. 2, lines 23-24) **the second**

logical volume being a copied logical volume of the first logical volume, as mirroring the contents of the first set of storage volumes into a second set of storage volumes (col. 2, lines 16-17) **the first and second logical volumes being in sync state,** as while the data is being written to the first set of storage volumes, mirroring the contents of the first set of storage volumes into a second set of storage volumes (col. 2, lines 16-17) **the third logical volume being a copied logical volume of the second logical volume, the second and third logical volumes being in sync state,** as backing up data stored in the second set of volumes to the tertiary storage device (col. 2, lines 23-24); **and**

splitting the second logical volume and the third logical volume from the first host by a command from the first storage subsystem, as terminating the mirroring, a set of commands, to disconnect the slave unit (second storage) from the master unit (first storage) by terminating the communication link (col. 2, line 19, col. 5, lines 20-25); **and**

performing a restore procedure (complete restore, col. 12, line 28) **comprising the steps of: mounting the third logical volume to the second host,** as mounts file systems (col. 12, line 42-43) **reading, at the second host, a file to be restored from the third volume, writing, at the second host, the file to the second volume,** as the backup server starts reading the backup datafiles from the tape drives and restores them over the corresponding R2 datafiles in the slave unit (step 190). After the datafiles have been written to the slave unit, the backup server restores the archived redo logs to archive redo log directory on the target site (col. 12, lines 44-49), **and re-**

synchronizing the first volume with the second volume, as resynchronizing the first

and sets of volumes with each other (col. 2, lines 25-28, col. 11, lines 17-18).

As per claim 2, Tamer teaches wherein performing a restore procedure further

comprises: recovering a database onto the first volume, if a database application is

being run on the first host (col. 2, lines 61-62).

As per claim 3, Tamer teaches wherein re-synchronizing the first volume with the

second volume further comprises: determining from a pending data bitmap data on the

second volume to be copied to the primary volume (col. 7, lines 41-67).

As per claim 4, Tamer teaches marking write data arriving after the command in

a pending data bitmap, thereby tracking which data has been modified (col. 10, lines 61-

63, col. 11, lines 18-30).

As per claim 5, Tamer teaches wherein the command comprises identities of one

or more files to be restored (both database have been corrupted, backup console

requests a restore of the database (e.g., a set of datafiles) (col. 12, lines 28-33) from the

third volume and written to the second volume, and wherein reading, at the second

host, a file to be restored from the third volume and writing, at the second host, the file

to the second volume, further comprises: reading exclusively the files specified in the

command from the third volume and writing the files so read to the second volume (col.

12, lines 42-49).

Claims 6, 9, 13 are rejected by the same rationale as state in independent claim

1 arguments. Furthermore, Tamer teaches **receiving an indication of files to be**

restored (both database have been corrupted, backup console requests a restore of

the database (e.g., a set of datafiles) (col. 12, lines 28-33); **determining whether the**

files to be restored comprise contents of an entire volumes, and if so: splitting

(col. 2, line 19, col. 5, lines 20-25) **remote mirrors** (remote data storage) **existing**

between the production volumes and backup volumes (col. 12, lines 33-41).

As per claim 7, Tamer teaches wherein **resynchronizing local mirrors** (local

mirroring, Tamer discloses a system has a local mirror disk, as tape backup in figure 2b

12, col. 8, line 60-61), **existing between the backup volumes and volumes holding**

data copied from the backup volumes comprises: comparing (to find the identity of

the tracks) **a pending bitmap for the backup volume with a pending bitmap for the**

volume holding data copied from the backup volume (the array includes a bit map

for each of the mirror volumes) **to determine a set of differential data** (the tracks have

been modified); **and copying the differential data from the volume holding data**

copied from the backup volume to the backup volume (the backup server starts

reading the backup datafiles from the tape drives and restores them over the

corresponding R2 datafiles in the slave unit) (col. 7, lines 1-67, col. 8, lines 34-62, col.

12, lines 45-49).

As per claim 8, Tamer teaches **wherein resynchronizing remote mirrors for**

the production volumes (the mirroring to the remote system, M1) **and the backup**

volumes (backup database, M2) **comprises: comparing** (to find the identity of the

tracks) **a pending bitmap for the production volume with a pending bitmap for the**

backup volume (the array includes a bit map for each of the mirror volumes) **to**

determine a set of differential data (the tracks have been modified); **and copying the**

differential data from the backup volume to the production volume (the backup

server starts reading the backup datafiles from the tape drives and restores them over

the corresponding R2 datafiles in the slave unit) (col. 7, lines 1-67, col. 8, lines 34-62,

col. 12, lines 45-49).

Claims 10, 12 are rejected by the same rationale as state in independent claim 1

arguments. Furthermore, Tamer teaches **the first and second storage subsystem**

are connected each other via a path (communication link, col. 5, line 22); **the first**

logical volume and the second logical volume being in a non-sync state (the

backup database becomes disconnected from the primary database, the two databases

are likely to get out of synchronization with each other, col. 7, lines 41-45).

As per claims 11 and 17 Tamer teaches wherein: **mounting the third logical**

volume to the second host (mounts file systems col. 12, line 42-43) **comprises**:

responsive to a command (script, sets of commands), **splitting the sync state**

between the second logical volume and the third logical volume (the backup sever

then executes custom script that unmounts the file system(s), col. 5, line 21, col. 12,

lines 50-63).

Claim 18 is rejected by the same rationale as state in independent claim 1

argument. Furthermore, Tamer **teaches code for splitting a sync state existing**

between a second storage unit and a third storage unit (the backup sever then

executes custom script that unmounts the file system(s), col. 12, lines 50-63).

Claim 19 is rejected by the same rationale as state in independent claim 10

arguments. Furthermore, Tamer teaches **a first storage subsystem connected to a**

first host (a first host processor connected to the first data storage system, col. 2, lines 61-62) and **a second storage subsystem connected to a second host** (a second host processor connected to the second storage system, col. 2, line 67, col. 3, line 1).

As per claim 20, Tamer teaches **a third storage subsystem** (data storage system 10, similar components are presented in the other data storage system 2, can be configured into multiple local mirroring), comprising: a fourth storage volume (disk adptr #52, host processor, fig.2, # 8(a)-8(n)), which is at least sometimes in a sync state with a fifth volume of the second storage subsystem (fig. 2, #52 connects by an ⇔, to remote data, storage system), the sync state enabling data at the first storage subsystem and the third storage subsystem to be collected at the second storage subsystem (col. 2, lines 25-28, col. 11, lines 17-18).

Conclusion

If a reference indicated as being mailed on PTO-FORM 892 has not been enclosed in this action, please contact Lisa Craney whose phone number is (703) 305-9601 for faster service.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DEBBIE M LE whose telephone number is 703-308-6409. The examiner can normally be reached on 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, JOHN BREENE can be reached on 703-305-9790. The fax phone number

for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

DEBBIE M LE
Examiner
Art Unit 2177

Debbie Le

April 8, 2004.
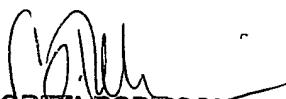
GRETA ROBINSON
PRIMARY EXAMINER